

SKETCH AND INVESTIGATE

- Q1** Three complete petals and the start of a fourth petal are formed when point B travels around the circumference.
- Q2** For each petal formed, point B travels a distance of $2r$. Note that the length of the petal itself, however, is not $2r$.
- Q3** Point B travels a little more than $3 \cdot 2r = 6r$ as it traces the circle's circumference.
- Q4** Because π is a little more than 3, the circumference formula $C = 2\pi r$ says that approximately 6 radii fit into a circle's circumference.
- Q5** Point A traces 22 petals as point B travels approximately 7 times around the circumference.

From the animation alone, it's hard to tell that 22 petals do not correspond precisely to 7 trips around the circumference.

This inexactness can remain unaddressed until Q8, where students obtain $\pi = 22/7$, which is not a precise value of π .

- Q6** 44 radii are contained in 7 circumferences (again, this answer is approximate).
- Q7** Written in equation form, $44r = 7 \cdot 2\pi r$. Solving for π yields $22/7$.
- Q8** The fraction $22/7$ approximates π accurately to two decimal places. For such a simple simulation, that's pretty good!

DEMONSTRATE

To demonstrate this activity, use **Radians Present.gsp**.